

Embryology), Invertebrata, Arthropoda and Nomenclature. These were presided over on successive days by different zoologists of eminence, and such numerous communications were made to each that it is impossible to give an account of these, or even a list of their titles.

The concluding meeting took place on Friday morning, when a large amount of business was transacted. The report of the Nomenclature Commission, which was adopted, included a recommendation that specific and generic names should be amended only when a printer's error or a mistake in orthography could be proved, and that in all cases the first name given to an animal, whether to the whole animal or to a part, to an adult or a larva, should stand, and also a proposal for introducing uniformity into the arrangement of figures on plates and the designation of their parts by explanatory letters. Resolutions were also passed in favour of the preservation of non-injurious animals and the formation of a section for zoogeography; it was, further, decided to hold the next congress in Bern, under the presidency of Prof. Studer. Addresses were given by Prof. Bütschli (Heidelberg) on "Vitalism and Mechanism," and by Prof. Branco (Berlin) on "Fossil Men," and after the usual complimentary resolutions the Congress was adjourned.

Such were in brief the formal proceedings, but, as is always the case, these were by no means the most important results. More far-reaching in their influence on the life and work of zoologists are the informal discussions and friendly conversations which take place in the intervals, on such occasions as the reception by the City of Berlin at the Rathhaus, by the Zoological Society in its magnificent garden and in other more modest convivial gatherings.

The whole meeting was admirably organised, with German thoroughness and attention to detail. It only remains to be added that an appendix to the Berlin meeting took place in Hamburg, where the members were received at the Rathaus by the Senate of the City, by the directors of the Hamburg-American Line on board the ss. *Graf Waldersee* and by the Zoological Society in their garden. A trip to Heligoland terminated the whole proceedings, which must have left a vivid and pleasant impression on the mind of every one present.

CHARLES A. SCHOTT.

M R. CHARLES A. SCHOTT, whose death we regret to record, was renowned throughout the world of physical science on account of his numerous memoirs on terrestrial magnetism. The work accomplished by him during a long and active career was both extensive and influential, and its value has long been recognised by physicists in both hemispheres.

From an appreciative account of Mr. Schott's work, which appeared in *Terrestrial Magnetism* two years ago, we learn that he was born at Mannheim, Baden, Germany, August 7, 1826. After passing through the public school and partly through the Lyceum of his native town, he entered the Polytechnic School at Karlsruhe, where, after a six-year course, he graduated as civil engineer in 1847. In December of that year he entered the service of the United States Coast Survey, and in due time became a citizen of the United States. At first he was engaged in office and nautical duties, but he was assigned to the position of Chief of the Computing Division of the Survey in 1855. Mr. Schott continued in charge of this until the end of 1899, and he then undertook the discussion of the arc measurements in the United States resulting from the extension triangulation already executed by the different organisations engaged in survey work. A summary of some of the results of this work was given in NATURE of February 21 (vol. lxiii. p. 408).

NO. 1660, VOL. 64]

Mr. Schott's numerous contributions to the annual reports of the Coast Survey since 1854 relating to hydrography, geodesy, practical astronomy, and especially to terrestrial magnetism, are well known. He also published through the medium of the Smithsonian Institution, between the years 1858 and 1881, a number of memoirs bearing on meteorology and on subjects relating to Arctic explorations. He was a member of the Government parties sent to Springfield, Illinois, to observe the solar eclipse of August 1869, and to Catania, Sicily, to observe that of December 1870. As delegate from the United States Coast and Geodetic Survey, he attended the International Conference on Terrestrial Magnetism, held at Bristol in 1898 in connection with the meeting of the British Association. In the same year he received the Henry Wilde prize of 4000 francs from the Paris Academy of Sciences for his numerous contributions to terrestrial magnetism. This was the first award of the prize; and the President of the United States in making the presentation alluded to the catholicity of scientific work and the recognition of distinguished merit implied in the fact that Mr. Schott—an American—should be awarded by French men of science a prize founded by an Englishman. It is encouraging to know that Mr. Schott's zeal and industry for the advancement of natural knowledge met with recognition in the world of science.

NOTES.

A COMMITTEE has been appointed by the President of the Board of Trade to inquire and report as to the best means by which the State or local authorities can assist scientific research as applied to problems affecting the fisheries of Great Britain and Ireland. The members of the committee are as follows:—The Right Hon. Sir Herbert Maxwell, Bart., M.P., Mr. Walter E. Archer, Mr. Donald Crawford, Rev. William Spotswood Green, Prof. William Abbott Herdman, F.R.S., the Hon. Thomas H. W. Pelham, Mr. Stephen E. Spring-Rice, C.B., and Prof. J. Arthur Thomson.

It has been decided to erect in Leoben, Austria, a statue of Peter Ritter von Tunner, who died on June 8, 1897, to commemorate his great services to the metallurgy of iron. An influential committee has been formed, with Mr. Ignaz Prandstetter as president, Prof. J. G. von Ehrenwerth as vice-president and Prof. Carl Fritz as honorary secretary, to collect subscriptions. At a recent meeting of the council of the Iron and Steel Institute the matter was considered. As a contribution to the memorial could not be voted from the funds of the Institute, the members of council present decided to contribute two guineas each, and Mr. Bennett H. Brough, the secretary, now informs us that he has forwarded to the committee in Leoben contributions of that amount from twenty-six members.

A REUTER message records that the *Lucania*, which left Liverpool on August 10 for New York, was spoken by wireless telegraphy at Nantucket Lightship shortly after 6 p.m. on August 16. The following message, signed by Captain McKay, was among those received on the lightship from the *Lucania*, and then transmitted forty miles to Siasconset, on Nantucket Island:—"All well on board. We are 287 miles from Sandy Hook, with clear weather, and expect to reach New York on Saturday. Please inform Cunard Agents." On reaching port the officers of the *Lucania* reported that the messages from Nantucket were undecipherable aboard ship.

WE learn from the *Athenaeum* that Dr. Trootz, the Belgian Minister of the Interior, who is also Minister of Education, has proposed in the Chamber the foundation of a *Belgica* prize for the promotion of oceanic researches by Belgians, and that the

prize shall be allotted at the discretion of the scientific class of the Academy. The sum of 41,000 francs, which will constitute the nucleus of the projected prize, has been obtained by the sale of the *Belgica*, the ship of the Belgian South Polar Expedition, to the Norwegian Government. Lieut. Gerlache, who was the leader of the expedition, suggests, on the other hand, that the capital of 41,000 francs should be put out to interest until the fund amounts to 100,000 francs, and that the interest should then be expended upon grants to Belgian oceanic explorers, and also upon a *Belgica* medal, to be bestowed upon polar explorers of all nations. It is reported that the Minister is now inclined to support Lieut. Gerlache's two suggestions.

A STRIKING example of the improvements which have been made in the mechanical arrangements for the loading of coal from railway trucks into vessels has recently been afforded by a new hydraulic coal hoist which has been erected at the Penarth dock. A steamer arrived in the dock at 8.10 in the morning. After taking in sufficient coal for her boilers she proceeded to load her cargo at 9.15, which was completed at 11.50, the steamer entering and leaving the dock on the same tide. The quantity of coal placed in the vessel was 2333 tons, in two and a half hours, or at the rate of about fifteen tons a minute.

THE next meeting of the International Navigation Congress is to take place at Dusseldorf from June 29 to July 6, 1902. The subjects that will be specially considered are (1) as regards inland navigation ; lifts ; lifts on inland waterways ; the transport of coal. Communications are invited on the construction of reservoir dams ; improvements in the mechanical propulsion of vessels ; utilisation of water-power at weirs for electric propulsion. (2) Ocean navigation ; construction of iron and wooden gates for locks ; the use of sea-going lighters ; construction and management of graving docks and repairing slips ; construction and cost of dredging machinery.

A PROJECT is now under consideration by the municipality of Vienna for disposing of the sewage of the city, which at present is discharged into the Danube. The scheme consists in the application of a method developed by Herr Noebel, of Posen, for the utilisation of the liquid part of the sewage for the double purpose of irrigation and manure. It is intended to convey the sewage in pipes to an extensive plain of poor land which suffers from a lack of water, due to inadequate rainfall, over which it is not to be carried in trenches, as is done in this country, but the surface of the land is to be irrigated by sprinkling the sewage water over it. It is contended that by this system the land will not be over-saturated, as it frequently is on the sewage farms at Berlin and Paris. The system is stated to have been already in use at Posen, with satisfactory results.

PROF. FREDERICK STARR, who for several years has closely studied the physical types of the tribes of southern Mexico, has, says *Science*, just brought his work to a close. Three kinds of work were done—measurement, photography and modelling. In each tribe one hundred men and twenty-five women were measured, fourteen measurements being taken of each individual. Photographic portraits were taken of typical subjects, a front view and a straight profile being made of each. Busts in plaster were made of those who appeared most perfectly to present the racial type, the moulds being made directly upon the subject. During the four seasons over which his work has extended, Prof. Starr has visited twenty-three tribes. While the physical types of the natives formed the chief subject of study, many views were also taken of the scenery, villages, houses, groups of Indians, native industries, &c. The material results of the investigation include measurements from 2850 persons, 1200 or more negatives, varying in size from 8 x 10 inches to 4 x 5, 100 busts in plaster and a large collection of objects—dress,

weapons, implements and products—illustrating the ethnography of the region. Several months will be necessary for putting all this material into shape for exhibition and publication.

THE Deutsche Seewarte has published, as an appendix to the August number of the *Annalen der Hydrographie*, a useful collection of storm tables for the Atlantic Ocean. For some years the Seewarte has been collecting and publishing notices of storms, giving, in a very concise form, the time, position and duration, the reading and motion of the barometer (rising or falling) and the various changes of the wind (backing or veering). The results have been arranged in tabular form, in twenty-two districts, according to months and seasons, and grouped under four principal points of the compass. The chief object of the tables is to show at a glance if, on the occurrence of bad weather (when the wind force has reached a fresh gale), there is a prospect of it becoming worse, what the probable further behaviour of the storm will be. The explanatory text contains useful remarks respecting the general distribution and characteristics of storms in different seasons and in various localities of the Atlantic.

AN important publication, just issued by the Department of Revenue and Agriculture of the Government of India, brings together the agricultural statistics of British India and of the Native States, so far as they can be procured, for the five years 1895-6 to 1899-1900. The first thirty pages are explanatory. The bulk of the volume consists of tables of figures, giving the areas of cultivated and uncultivated land ; the areas under each crop (the irrigated and not irrigated separately mentioned) ; the average yield of the principal crops ; the number of farm animals, ploughs and carts ; the statistics of land revenue assessment, and of transfers of land, for each separate district in the empire. The information will be of the greatest value to those who have the task of developing the resources of the country. The general summary of the acreage described for the year 1899-1900 is as follows :—

	British India, Acres.	Six Native States, Acres.
Total area surveyed	544,858,070	45,952,429
Under forest	65,843,924	3,087,209
Unculturable	135,506,014	11,374,311
Culturable waste	106,404,704	9,765,998
Fallow land	57,163,761	5,452,596
Sown with crops	180,151,093	10,385,927
Irrigated	31,544,056	1,357,463

THE Report on the Observatory Department of the National Physical Laboratory for the year 1900 has been published in the *Proceedings of the Royal Society*. The magnetographs have been in constant operation throughout the year, but the curves have been quite free from any large fluctuations. The mean westerly declination for the entire year was 16° 52' 7". The automatic and tabulated records of the various meteorological instruments have been transmitted, as usual, to the Meteorologica Office, to be dealt with in its publications, and special cloud observations have been made each month in connection with the international scheme of balloon ascents. Seismological observations have been regularly made ; two noticeable disturbances occurred during the year, on January 20 and October 29. A detailed list of the movements of the seismograph will be published in the Report of the British Association for the present year. As regards experimental work, the observation of distant objects during mist and fog and researches upon atmospheric electricity, referred to in previous reports, have been regularly continued. The list of the various instruments tested is a very long one ; we therefore select only a few of the principal cases in which a considerable increase has occurred :—Aneroids and marine barometers (number tested in year 1900), 336 (increase 69) ; compasses, 963 (increase 559) ; rain gauges, 1345 (increase

784); clinical thermometers, 20,476 (increase 4456); total number of instruments tested, 27,569 (increase 5518). The principal addition to the staff during the year has been the appointment of Dr. J. A. Harker as an assistant in the Laboratory. Among the different appendices may be mentioned one showing the mean values of the magnetic elements at observatories the publications of which are received.

THE first number has reached us of the "University of Missouri Studies," a publication which it is proposed to issue as irregular intervals as often as work of the required standard it offered by members of that University. The present number consists of "Contributions to a Psychological Theory of Music," by Dr. Max. Meyer, professor of experimental psychology.

PROF. ANGELO ANDRES, writing in the Lombardy *Rendiconti*, discusses the choice of a base line in the so-called "rational" measurement of animals according to which the various dimensions are expressed in terms of one measurement, generally representing the length of the animal. As a result of the considerations brought forward by the author, the distances which best satisfy the requirements in the selection of the base fall, in the case of vertebrate animals, into six groups, according to the particular class of animals considered.

A STUDY of the nummulites of southern Italy has been made by Dr. Giuseppina Gentile, chiefly from observations of specimens in the geological museum of the University of Naples. The examples which the authoress describes, belonging to twelve species and five varieties, come from the Middle and Upper Eocene formations, the former being represented by a prevalence of the forms *N. laevigata*, *N. lucasana* and *N. perforata* and the latter strata being characterised similarly by a prevalence of *N. Tchihatcheffi* and *N. Guettardii*. The paper is to appear in the *Atti* of the Naples Academy.

WITH the object of conducting researches in limnology in Italy similar to those instituted in Switzerland by Forel, the Reale Istituto Lombardo appointed in 1896 a committee to investigate the variations of temperature in the lake of Como, and a preliminary report appears in the *Rendiconti* of the Academy, xxxiv. 11. The western limb of the lake is particularly suitable for such observations, on account both of the regularity of its basin and, more especially, on account of the absence of any fluvial current of importance. The vertical distribution of temperature is in conformity with the measurements obtained by Burguières and Forel. In connection with the annual variations, the most remarkable feature (observed in two consecutive years) was the irregular undulation of the curves at depths of twenty and thirty metres, and in particular the appreciable cooling which at these depths occurs in the hottest months. Observations have also been made on the variations of long period, and on the horizontal distribution of temperature across various sections of the lake.

THE *Journal* of the Royal Microscopical Society for August contains the full report of the paper to which we have already alluded, by Mr. J. W. Gordon, on the Abbe diffraction theory, very fully illustrated by a large number of diagrams. The main point of Mr. Gordon's contention is that the diffraction effects seen in the use of Zeiss's *Diffractions Platte* are produced by the diaphragm itself. He maintains that the diffraction theory has virtually been abandoned by Prof. Abbe himself. In the discussion which followed, in which Prof. S. P. Thompson and Mr. Julius Rheinberg took part, and which is also reported in full, the prevalent view appeared to be that while Mr. Gordon had successfully exposed the incorrectness of some of the statements of Naegeli and Schwendener and of other exponents of the theory, he had not succeeded in showing that these errors were the necessary consequences of the theory.

NO. 1660, VOL. 64.]

M. BLONDEL concludes his paper on oscillographs and their use in the current number of the *Revue générale des Sciences* with an account of his work on the alternate current arc. The paper contains a number of very interesting oscillograph curves—the first to be published of those taken by Mr. Blondel's double oscillograph—showing the variation of current and potential difference with an alternate current arc between carbons or between carbon and metal. The general characteristics of these curves are now fairly well known, either through the previous papers by M. Blondel or through the exhaustive series of waveforms in Mr. Duddell's paper in the *Journal* of the Institution of Electrical Engineers (vol. xxviii. p. 1). Greater interest attaches, therefore, to the curves showing the effect of an alternating current superimposed on a direct current arc. The form of these curves throws important light on the much-discussed "negative resistance" of the arc. The curves published by M. Blondel lead him to the conclusion that the value of dV/dA is very small, positive for cored and negative for solid carbons. This ratio, the negative value of which, found by Messrs. Frith and Rodgers, gave rise to the controversy alluded to above, is defined by M. Blondel as "the coefficient of stability," which seems to us a very convenient term.

A REPORT by Prof. T. E. Thorpe, C.B., F.R.S., on the work of the Government Laboratory upon the subject of the use of lead compounds in pottery, has been published as a Parliamentary paper. It may be remembered that a detailed report upon the use of lead compounds in the production of pottery glazes and colours was prepared by Profs. Thorpe and Oliver in 1899, and the conclusions were described in these columns (vol. ix. p. 18). Since the publication of that report a large number of further experiments have been made upon lead fritts and upon glazes containing their lead in the form of lead fritt, and a second paper was issued a short time ago. The present paper embodies chemical evidence which Prof. Thorpe has to offer in connection with the special Rules drawn up for potteries as to the use of fritted lead and its degree of insolubility. Fritted lead is a silicate or borosilicate of lead formed when "raw" lead, that is, red lead, white lead or litharge is fused or fluxed with a part or the whole of the silica, or of the silica and the other materials used for the glaze. Potters agree that fritted lead can be substituted for raw lead in every section of pottery manufacture, and it was thought by the Department Committee (1893) on lead poisoning that this would mitigate the evil, then very prevalent. But there are different kinds of fritted lead depending upon the proportions of the materials taken. Some lead frits appear to be little less soluble in dilute acids than raw lead, and therefore have just as injurious an effect when they find their way into the system of the potter and are dissolved by the gastric juice. Other frits are nearly insoluble and therefore innocuous. It is to ensure the use of such insoluble, or slightly soluble, frits that the efforts of the Home Office are now directed. Practical difficulties have, however, arisen as to the standard and tests of solubility, and Prof. Thorpe's report deals chiefly with the objections which have been raised to the proposed Rule on scientific grounds.

DR. R. W. SHUFELDT, in the *American Naturalist*, discusses the osteology and systematic position of the auks and puffins. After reviewing the various arrangements proposed by other writers, the author considers that these birds should form a suborder (= order of most ornithologists), the Alcæ, which is connected, on the one hand, with the plover group through the gulls and their allies, and on the other, through the petrels, with the penguins, loons, grebes and their extinct toothed ally, *Hesperornis*. In reality, this arrangement is not very different from the one proposed years ago by Dr. Sclater, who placed

the auks and loons in a single order (*Pygopodes*), flanked on the one side by the petrels and on the other by the penguins.

THE July issue of the *American Naturalist* opens with a continuation of Mr. W. H. Wheeler's account of the compound and mixed nests of American ants, the present section dealing with the instances of "social symbiosis." No less than eight different types of this association are recorded, for each of which a special term is adopted. *Plesiobiosis*, for instance, indicates the cases where ants of two (rarely more) species, which are generally inimical to each other, excavate their galleries in close contact. *Xenobiosis*, on the other hand, refers to the so-called guest-ants, which maintain independent households among their hosts, with whom they may be on terms of toleration, or even friendship; while *Dulosis* is applied to cases where one species of ant is kept in slavery by another. The paper teems with interest to students of ant-life.

THE important series of descriptive catalogues recording the collections made by the Royal Indian Marine Survey ship *Investigator* has been enriched by the appearance of "A Descriptive Catalogue of the Indian Deep Sea Crustacea Decapoda Macrura and Anomala." In his preface the author, Major A. Alcock, states that although most of the new species obtained during the dredging cruises of the vessel under his direction have been described in earlier publications, the present volume must not be regarded as a mere reprint of such reports. It contains definitions of the larger groups under which the species are arranged and also valuable tables of distribution, as well as a considerable amount of material prepared by the author as the basis of a larger work on Indian crustaceans. Out of a total of 117 species of Macrura (lobsters, crayfish, shrimps, &c.) obtained during the various cruises, sixty-nine are believed to be peculiar to Indian waters. Most were obtained in less depths—mostly much less—than 1000 fathoms; and out of eleven dredged from deeper water, only five appear to be truly abyssal, several of the others being taken in the net during its ascent. The Anomala present a greater percentage of deep-sea forms, eight out of fifty-two being abyssal types.

DESPITE an unfortunate falling-off in the income, the Report of the Manchester Museum for 1900-1 tells of continued progress of that institution. Owing to the generous presentation of his collection by Mr. P. Schill, which is especially rich in Eastern Holarctic forms, the Manchester series of Lepidoptera now occupies a foremost position among provincial cabinets. The director has also to report the presentation by Mr. R. D. Darbshire of a shell of *Pleurotomaria adansoniana* from Barbados; and the purchase of duplicate shells from the Layard collection has been a most satisfactory investment, the sale of superfluous specimens having repaid the entire cost, while more than 2000 examples have been added to the Museum series. The herbarium has also been largely increased. Neither has the exhibition series been neglected, the director calling especial attention to the display of the various groups of worms, as well as to the dissections and drawings illustrating the anatomy of molluscs.

WE have much pleasure in congratulating the Field Naturalists' Club of Victoria on its "coming of age," an event which was duly celebrated in Melbourne on June 25. In calling attention to the present condition of the Club, the committee were able to report, in spite of increased expenditure, a slight improvement in the finances and also an increase in the roll of members. During the year the Club has called attention to the destruction of various species of "wattle" (*Acacia*), and also to the spread of the water-hyacinth and iris—it is hoped with good results. Among other papers, the July issue of the *Victorian Naturalist* contains one describing the curious incrustations

formed on roots in the littoral sand-dunes of certain districts. The theory that these are formed by the action of vegetable acids on the lime contained in the sand is confirmed. By the decay of the contained root and the percolation of calcareous matter these incrustations may become solid throughout.

THE occurrence of chrysoberyl in the gneiss of Manhattan Island, New York City, is recorded in a pamphlet published by Mr. W. G. Levison (New York, 1901).

AN article in the *Pioneer Mail* of July 5, 1901, deals with the important question of artesian wells for India, and it is urged that the Imperial Government should undertake a series of borings. Mr. Griesbach, the Director of the Geological Survey of India, has suggested that a search for artesian water might be made in the flat country enclosed by Mahi Kantha on one side and Kathiawar on the other in Gujarat proper. If successful the wells would be useful in the northern division of Bombay.

A PRELIMINARY report on the Cape Nome gold region on the south-western coast of Alaska has been prepared for the United States Geological Survey (1900) by Mr. F. C. Schrader and Mr. A. H. Brooks. In this region the bed-rock consists of altered limestones, mica schists and gneisses, and above it are various gravels forming beaches and terraces, which occur in the gulches (creeks) and valleys and also over the tundra. It is remarked that the gulch and beach placers are extraordinarily rich in gold, and the metal is also known to occur in the bars of the larger rivers and in the tundra. No bed-rock mining has been done, but as the gravels and gold are largely of local origin, workable veins may eventually be found. The authors observe that the staking of new claims "is probably nearly a thing of the past, yet those having capital to invest will undoubtedly find plenty of claims for sale." They add, "it would be very wise for all inexperienced newcomers to save money for the return passage."

A NEW scientific journal, the *Allgemeine Naturforsch-Zeitung*, will be published in Berlin early in October. The prospectus states that the journal will be "die erste naturwissenschaftliche Zeitung der Welt."

A SECOND edition of the second report of the United States Board on Geographic Names has been received, and with the exception of a few minor corrections it is the same as the original edition of May, 1900. The general policy of the Board has been to adopt the name which is in common local use at present, but local usage has been neglected in some cases in order to effect reforms in nomenclature. Among these departures approved by the Board are the following:—the avoidance, so far as practicable, of the possessive form of names; the omission of the final "h" in the termination "burgh"; the abbreviation of "borough" to "boro"; the spelling of the word "centre" as "center"; discontinuance of the use of hyphens in connecting parts of names; the simplification of names consisting of more than one word by their combination into one word; the avoidance of the use of diacritic characters; the omission of the words "city" and "town" as parts of names. Evidently these principles have their limitations, and the Board recognises the practical impossibility of inducing English people to speak of Germany as *Deutschland*, Turin as *Torino*, or The Hague as *'s Gravenhage*. It is suggested, however, that the adoption of the home name "is a reform to which we may look forward and work toward, and which may be attained in the future." Each name must evidently be considered separately, and the Board exists to do this and to decide what name shall be adopted. The present report contains all decisions rendered by the Board from its creation to April, 1900.

THE additions to the Zoological Society's Gardens during the past week include a Patas Monkey (*Cercopithecus patas*) from West Africa, presented by Mr. U. R. Noble; two Bonnet Monkeys (*Macacus sinicus*) from India, presented respectively by Mrs. Noble and Miss Weil; two Ring-tailed Coatis (*Nasua rufa*) from South America, presented respectively by Mr. Charles North and Mr. E. F. Johnston; two White-tailed Gnu (*Connochaetes gnu*) from South Africa, presented by Mr. C. D. Rudd; an Osprey (*Pandion haliaetus*) captured at sea, presented by Commander H. Strong; a Toco Toucan (*Ramphastos toco*) from Guiana, a Red-billed Toucan (*Ramphastos erythrorhynchus*) from Cayenne, a Hutchin's Goose (*Bernicla hutchinsi*) from Arctic America, presented by H.E. Sir W. J. Sendall, G.C.M.G.; two Infernal Snakes (*Boodon infernalis*), six Ruffescent Snakes (*Leptodira holambaeia*), six Rhomb-marked Snakes (*Trimerorhinus rhombatus*), five Crossed Snakes (*Pseudechis crucifer*), two Rough-keeled Snakes (*Dasypteltis scabra*) from South Africa, presented by Mr. A. W. Guthrie; a Horned Lizard (*Phrynosoma cornutum*) from Texas, presented by Miss Wilson; an Eyed Lizard (*Lacerta ocellata*), a Tessellated Snake (*Tropidonotus tessellatus*), South European, presented by the Rev. F. J. Jervis-Smith, F.R.S.; a Brindled Gnu (*Connochaetes taurina*) from East Africa, purchased.

OUR ASTRONOMICAL COLUMN.

NOVA PERSEI.—A telegram from Kiel announces that photographs of Nova Persei, taken on August 19 and 20 by MM. Flammarion and Antoniadi, show a nebulous aureola having a definite sharp outline.

PERIOD OF MIRA CETI.—Prof. A. A. Nijland finds from a series of thirty-nine observations of this long-period variable during the interval July 17 to September 11, 1900, that the maximum occurred last year on August 3. As will be seen from the table below, this brings the period back to the short value of 1897. (*Astronomische Nachrichten*, Bd. 156, No. 3733.)

Observed maximum.	Predicted (Chandler III.).	Magnitude.	Period.
1897 Jan. 11	1896 Dec. 12	3.70	319 days
1897 Nov. 26	1897 Nov. 9	3.24	312
1898 Oct. 4	1898 Oct. 6	2.91	350
1899 Sept. 19	1899 Sept. 3	3.75	318
1900 Aug. 3	1900 Aug. 1	3.35	

THE CAPE OBSERVATORY.—The annual report to the Admiralty has recently been issued by Sir David Gill, and summarises the work done at the institution during the year 1900.

The new transit observatory is now satisfactorily erected. It is of sheet steel, having triple sides, thus forming a double series of ventilating shafts, arranged so as to carry off all heated air by convection and deliver it by funnels 13 feet distant from the observing shutter; this latter is 6 feet wide, formed by the two halves of the building sliding apart.

The upper part of the structure is semicylindrical, its axis coinciding with that of the transit circle. It is hoped that this symmetry between building and instrument will eliminate abnormal refractions. The double-chambered walls have made it possible to attain practical equality between the external and internal temperatures.

Transit Circle.—Much of the transit circle work has consisted of a thorough investigation of the influence of "star magnitude" on the observers' personal equations. The results are given in detail, and indicate that, while there is considerable range in magnitude personality for different observers, every observer records the time of transit of a faint star later than that of a bright one, and also, as a rule, this personality is greater "per magnitude" for faint than for bright stars. Another somewhat

unexpected fact brought out by the investigation is that the difference of personality remains nearly the same for stars of very different declination.

Heliometer.—Regular observations of all oppositions of major planets have been continued—of these fifty-three related to Jupiter, forty to Saturn, forty-four to Uranus and sixty-six to Neptune. Observations were also made of the conjunction of Jupiter and β Scorpii, and of the distances of the cusps of the partially eclipsed sun on November 22, 1900.

McClean Equatorial.—The 24-inch photographic objective has been refigured and forwarded to the Cape from Dublin. The 18-inch visual telescope has been employed in the observation of double stars, thirty-one previously unrecorded pairs being found, nine of which are naked-eye stars.

In consequence of the absorption of the three heavy flint prisms belonging to the "line of sight," spectrograph they have been replaced by four of lighter glass giving the same total deviation. Mr. McClean, who is providing these, has also generously given an order to Messrs. Zeiss for a second objective prism of 24 inches aperture and 10° refracting angle.

Physical Laboratory.—Investigations have been in progress by Mr. Lunt dealing with the spectra of oxygen, silicon, aluminium, boron and sulphur, and provision is being made for a further study of the spectra of various gases.

Astrographic Charts and Catalogue.—One hundred and three triple image chart plates have been passed, bringing up the total to 362. For the revision catalogue, 172 plates have been taken. During the year, 124 catalogue plates, containing 71,655 stars, have been completely measured in both coordinates in reversed positions of plate.

South African Survey.—This has been pushed rapidly forward in Rhodesia, the party reaching latitude $16^{\circ} 30'$ S., and they expected to reach the Zambesi by the end of July. The operations for the Anglo-German Boundary Survey are also in steady progress. It is hoped that arrangements will soon be possible for the extension of the survey through the international territories north of Rhodesia, thus bringing the long-wished-for African arc of meridian nearer to practical realisation.

OBSERVATION OF COMET a (1901).—Mr. J. Cresswell, writing from a mining camp near the centre of Borneo, sends a drawing of this comet, which was visible there on May 7-12. He says:—"It was very bright, and had two tails which on May 10 were $29\frac{1}{2}$ ° apart and on May 12 35° apart. The lower tail was less bright than the upper. I looked for it during the solar eclipse, but did not see it." Further observations were prevented by cloud.

THE AUGUST METEORS OF 1901.

THE weather was tolerably clear near the time of the maximum and enabled the shower to be pretty well observed. On August 10, 11 and 12, or on one or two of those nights, a considerable number of meteors were recorded at various places where the clearness of the sky permitted observation. The maximum appears to have occurred rather later than usual, for the greatest number of meteors displayed themselves on Tuesday morning, August 13, but the state of the sky did not allow the progress of the display to be fully observed during its rise, culmination and fall.

The first marked indication of the Perseids as a definite shower became apparent on July 21, when the writer at Bristol recorded five swift streak-leaving meteors from a radiant at $23^{\circ} + 52^{\circ}$, but two of them were imperfectly seen and their directions could be only roughly noted, so that the resulting radiant was not very satisfactory, though there could be no doubt of its actual existence either at or very near to the position assigned.

Between July 21 and August 10 the development of the shower could not be fully traced, owing to moonlight or cloudy weather. On August 10 the display was moderately rich. There was no special activity on the part of the Perseids, but the minor showers of the period were in prominent evidence and provided meteors as fast as the observer found it convenient to record them. Between about 9h. 30m. and 15h. the total number of meteors seen by the writer at Bristol was 102, but nearly half of the time mentioned was consumed in registering paths. While the observer's attention was, in this manner, diverted from the sky, a large number of meteors must have eluded notice; of the 102 seen 55 were Perseids.

On August 11 the sky was clear until after midnight, and